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## **EVALUATION OF QUALITY DEER MANAGEMENT (QDM) IN DEER MANAGEMENT UNIT 045 (LEELANAU COUNTY)**

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### **ABSTRACT**

*A survey was completed to determine whether hunters and landowners supported existing mandatory Quality Deer Management (QDM) regulations in Deer Management Unit (DMU) 045. A key feature of these existing QDM regulations was the legal definition of a buck was a deer with three or more points on one antler. The Michigan Department of Natural Resources (DNR) supports the voluntary implementation of QDM practices on private land in Michigan. However, mandatory regulations should be imposed in a DMU only when it can be shown that a clear majority (>66%) of hunters and landowners support implementation. Questionnaires were sent to a random sample of landowners and hunters; 75% of the landowners and 85% of hunters returned their questionnaire. About 72% of landowners owning land in DMU 045 and 72% of people hunting deer in DMU 045 supported continuation of antler point restrictions. Support from both landowners and hunters was sufficient to recommend continuation of antler point restrictions in DMU 045.*

### **INTRODUCTION**

Since 2003, deer hunters in Leelanau County (Deer Management Unit 045) have been allowed to take an antlered deer (buck) only if it has three or more antler points on at least one antler (Frawley 2002). The regulation was implemented as part of a deer management philosophy called Quality Deer Management (QDM). Antler point restrictions are only one aspect of QDM,



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others include keeping deer populations in balance with the habitat, more closely balancing sex ratios, and increasing the number of older-age bucks in the population.

The Michigan Department of Natural Resources (DNR) supports the voluntary implementation of QDM practices on private land. The DNR supports mandatory QDM regulations in a DMU if at least 66% of hunters and landowners in the affected DMU support these regulations. The DNR developed guidelines for considering and implementing QDM regulations with the assistance of private conservation groups and resource agencies (Quality Deer Management Working Group 1999). According to these guidelines, the DNR would determine whether hunters and landowners supported continuation of antler point restrictions five years after they were initiated.

The Natural Resources Commission and Wildlife Division have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Opinion surveys are a management tool used by the Wildlife Division to accomplish its statutory responsibility. The main objectives of this opinion survey were to determine whether hunters and landowners supported continuation of the existing antler point restrictions (i.e., three points on a side) in DMU 045.

## **METHODS**

This survey was done in accordance with guidelines developed for evaluating proposed mandatory QDM regulations in Michigan (Quality Deer Management Working Group 1999). A questionnaire was sent to 1,755 randomly selected hunters and landowners from DMU 045. The survey was designed to produce estimates that would be accurate within a margin of error of plus or minus five percentage points.

A list of property parcels  $\geq 5$  acres was obtained from the Leelanau County Equalization Department. The property tax records were organized by property parcel identification numbers, rather than by landowner names. Therefore, people owning multiple parcels were in the property tax records multiple times. Parcels owned by the same landowner were combined to create a list of landowners (without multiple parcels per landowner). As this list was compiled, publicly owned land and parcels within cities and villages were excluded. Parcels classified as industrial, commercial, or timber cutover were also excluded. From the final landowner list, 1,000 landowners were randomly selected to receive a questionnaire (i.e., simple random sampling design, Cochran 1977).

The estimate of hunter support was also calculated using a simple random sampling design. A random sample of these hunters was obtained from lists of people that indicated they had hunted in Leelanau County during 2001-2006. These lists represented randomly selected people included in annual deer harvest surveys that were conducted by the Wildlife Division (see annual deer harvest reports; e.g., Frawley 2007).

People receiving the questionnaire were asked to report whether they supported the mandatory QDM regulations for DMU 045. Response options to the question on the proposal were "yes," "no," "no opinion," and "don't care" (Appendix A). The percentage of support was measured by dividing the number of "yes" responses by the sum of those responses indicating

“yes,” “no,” or “no opinion.” People who indicated “don’t care” or who did not provide an answer were not used to estimate support for the proposed QDM regulations. Moreover, opinions of hunters that did not hunt within DMU 045 and landowners that did not own land within DMU 045 were not included when estimating support for the proposed QDM regulations.

Estimates of support for the mandatory QDM regulations were calculated along with their 95% confidence limit (CL). This CL could be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval was a measure of the precision associated with the estimate and implied that the true value would be within this interval 95 times out of 100. Estimates were not adjusted for possible response or nonresponse bias.

The random sample of people receiving the questionnaire included 1,000 landowners and 823 hunters, including 68 people that were included in both the landowner and hunter samples (Table 1). Questionnaires were initially mailed during December 2008. Up to two follow-up questionnaires were mailed to nonrespondents.

## **RESULTS AND DISCUSSION**

Although 1,755 people were sent the questionnaire, 70 surveys were undeliverable resulting in an adjusted sample size of 1,685 (i.e., minus undeliverable questionnaires). Questionnaires were returned by 1,330 people, yielding a 79% adjusted response rate. Questionnaires were mailed to 1,000 landowners and 823 hunters, but questionnaires were undeliverable to 41 landowners and 29 hunters. Thus, the adjusted sample size was 959 landowners and 794 hunters. Questionnaires were returned by 723 landowners (75%) and 672 hunters (85%) (Table 1). Response rates of both groups exceeded the minimum response rate of 50% that was required in order to accept the results of the survey (Quality Deer Management Working Group 1999).

About 72% of the landowners owning land in DMU 045 supported continuation of the mandatory QDM regulations (Table 2). In contrast, 19% of landowners did not support mandatory QDM regulations, and 10% did not have an opinion about the regulations. Among hunters that hunted in DMU 045, about 72% supported the proposed mandatory QDM regulations (Table 3). About 26% of the hunters did not support continuation of the mandatory QDM regulations, and 2% did not have an opinion about the regulations. The support of both landowners and hunters was sufficient to recommend continuation of antler point restrictions for DMU 045 by the Wildlife Division to the Natural Resources Commission.

## **ACKNOWLEDGEMENTS**

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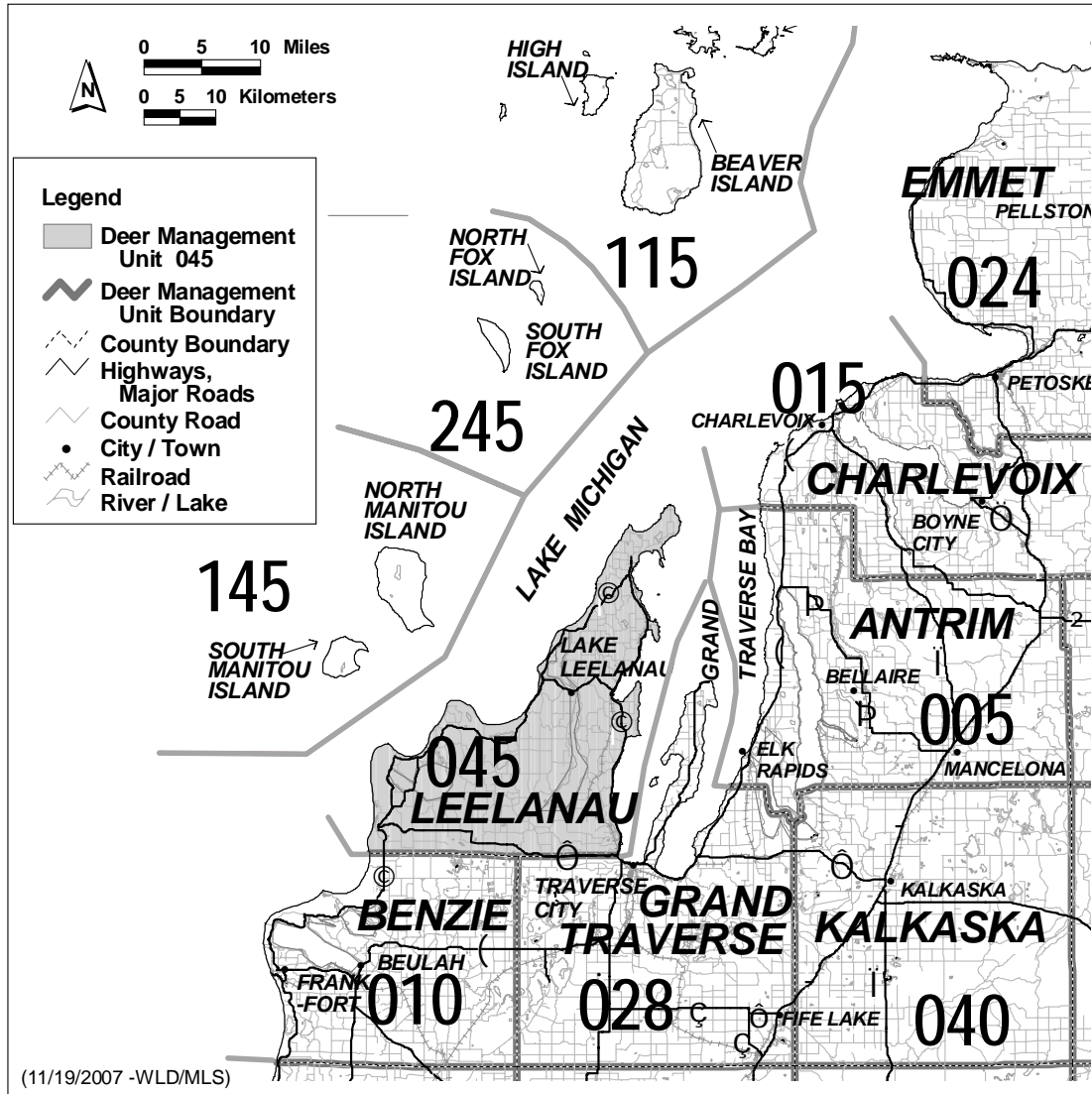


Figure 1. Deer Management Unit 045 (shaded area) in western Lower Peninsula of Michigan, 2007.

Table 1. Number of people within each group and number selected for the random sample of people receiving the opinion survey regarding continuation of mandatory QDM regulations in DMU 045, Michigan.

Group	Total number of people in group	Number of people included in sample <sup>a</sup>	Number of questionnaires that were undeliverable	Number of questionnaires returned	Response rate (%)
Landowners <sup>b</sup>	3,102	1,000	41	723	75
Hunters <sup>c</sup>	3,900	823	29	672	85

<sup>a</sup>Sixty-eight people were included in both the landowner and hunter samples; thus, the overall sample size consisted of 1,755 people.

<sup>b</sup>Landowners owned at least one 5-acre parcel; however, each landowner was counted once regardless of number of parcels owned.

<sup>c</sup>Mean estimated number of people that hunted deer annually in Leelanau County in 2001-2006 (see annual deer harvest reports; e.g., Frawley 2007).

Table 2. Proportion of landowners supporting continuation of mandatory QDM regulations in DMU 045, Michigan.

Response	Percentage of landowners <sup>a</sup>	95% CL <sup>b</sup>	Responses (%)
Yes (Supported mandatory QDM regulations)	71.8	3.0	<p>Yes 71.8%</p> <p>No 18.5%</p> <p>No Opinion 9.7%</p>
No (Did not support mandatory QDM regulations)	18.5	2.6	
No opinion	9.7	2.0	

<sup>a</sup>Percentage of landowners owning at least one 5-acre parcel of land in DMU 045; landowners that selected “don’t care” (4.9 ± 1%) or failed to provide an answer (<1%) about their support for QDM regulations were not used to measure support for mandatory QDM regulations.

<sup>b</sup>95% confidence limits.

Table 3. Proportion of hunters supporting continuation of mandatory QDM regulations in DMU 045, Michigan.

Response	Percentage of hunters <sup>a</sup>	95% CL <sup>b</sup>	Responses (%)
Yes (Supported mandatory QDM regulations)	72.2	3.3	<p>Yes 72.2%</p> <p>No 26.1%</p> <p>No Opinion 1.7%</p>
No (Did not support mandatory QDM regulations)	26.1	3.2	
No opinion	1.7	0.9	

<sup>a</sup>Percentage of hunters that hunted deer in DMU 045; hunters that selected "don't care" (<1%) or failed to provide an answer (<1%) about their support for QDM regulations were not used to measure support for mandatory QDM regulations.

<sup>b</sup>95% confidence limits.

## Appendix A

Quality Deer Management Survey Questionnaire for  
Deer Management Unit 045.





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## DEER MANAGEMENT SURVEY

This information is requested under authority of Part 435, 1994 PA 451, M.C.L. 324.43539.



*Starting in 2003, deer hunters in Leelanau County (Deer Management Unit 045) were only permitted to take an antlered deer if it had three or more antler points on one antler. This rule has now been in effect for five hunting seasons, but before we recommend continuation of this rule, we must determine whether hunters and landowners support continuation of these antler-point restrictions.*

1. Do you hunt deer in Leelanau County (see map on reverse side)?    <sup>1</sup> ☐ No    <sup>2</sup> ☐ Yes
2. Do you own land in Leelanau County (see map on reverse side)?    <sup>1</sup> ☐ No    <sup>2</sup> ☐ Yes
3. **Do you support the continuation of the antler point restrictions in DMU 045 (Leelanau County)? For purposes of measuring support, checking the “no opinion” box indicates you have not formed an opinion about the proposal.** Only surveys with the “yes” box will be considered support for continuation of the antler point restriction. Checking the “don’t care” box will result in your opinion not being counted as supportive or opposed to the proposal. This merely indicates that you are aware of the proposal and don’t care what the deer hunting regulations are for this area.

<sup>1</sup> ☐ Yes                      <sup>2</sup> ☐ No                      <sup>3</sup> ☐ No Opinion                      <sup>4</sup> ☐ Don’t Care

*Please return questionnaire in the enclosed postage-paid envelope.  
Thank you for your help.*

# DEER MANAGEMENT UNITS IN LEELANAU COUNTY

*Shaded area affected by existing antler point restrictions*

